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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/643,921	08/23/2000	Wilf LeBlanc	36795/CAG/B600	2488

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EXAMINER	
SWERDLOW, DANIEL	
ART UNIT	**PAPER NUMBER**
2644	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/643,921	LEBLANC ET AL.	
	Examiner	Art Unit	
	Daniel Swerdlow	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-108* is/are pending in the application.

4a) Of the above claim(s) *5-16,21-32,34,38-48,53-62,67-76,81-92 and 97-108* is/are withdrawn from consideration.

5)☒ Claim(s) *3,4,19 and 20* is/are allowed.

6)☒ Claim(s) *1,2,17,18,33,35,49,50,63,64,77,78 and 93-95* is/are rejected.

7)☒ Claim(s) *36,37,51,52,65,66,79,80 and 96* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 March 2005 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 17, 33, 49, 63, 77, 93 and 95 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamilton (US Patent 5,721,923).

4. Regarding Claim 1, Hamilton discloses a technique for allocating resources in a call processing system (abstract) (i.e., a method of managing resources of a system) comprising: providing processing resources to a channel (i.e., processing a signal) (column 2, lines 29-32); determining what level of resource is required (i.e., estimating signal processing complexity) (Fig. 1, step 107; column 4, lines 13-15); and selecting a performance level (i.e., adjusting adaptation speed) of an echo canceller by adjusting the length (i.e., changing the number of

coefficients) of the echo canceller based on available processing headroom (i.e., when estimated complexity exceeds a threshold) (column 4, lines 21-35).

5. Regarding Claim 17, Hamilton discloses a technique for allocating resources in a call processing system (abstract) (i.e., a method of managing resources of a system) comprising: performing DTMF detection, text-to-speech conversion and echo cancellation for a channel (i.e., performing a plurality of signal processing functions on a signal, including echo cancellation function) (column 3, lines 61-66); adjusting processing headroom in the system (i.e., estimating and summing average complexity of each of the processing functions) (Fig. 1, step 109; column 4, lines 36-44; column 7, lines 1-9); and selecting a performance level (i.e., adjusting adaptation speed) of an echo canceller by adjusting the length (i.e., changing the number of coefficients) of the echo canceller based on available processing headroom (i.e., when the sum of estimated average complexities exceeds a threshold) (column 4, lines 21-35).

6. Regarding Claim 33, in addition to the elements shown above apropos of Claim 1, Hamilton discloses use of the system to assign resources of a voice processing system among telephone calls (i.e., a telephony device and a signal processor coupled thereto).

7. Claim 49 is essentially similar to Claim 1 and is rejected on the same grounds.

8. Claim 63 is essentially similar to Claim 17 and is rejected on the same grounds.

9. Regarding Claim 77, in addition to the elements shown above apropos of Claim 1, Hamilton discloses implementing the method using software (i.e., computer-readable media embodying a program of instructions executable by a computer to perform the method) (column 3, lines 37-39).

10. Regarding Claim 93, in addition to the elements shown above apropos of Claim 17, Hamilton discloses implementing the method using software (i.e., computer-readable media embodying a program of instructions executable by a computer to perform the method) (column 3, lines 37-39).

11. Regarding Claim 95, Hamilton further discloses selecting a less sophisticated echo canceller (i.e., reducing the complexity of the echo cancellation adaptation) (column 4, lines 29-32).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 2, 18, 35, 50, 64, 78 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton in view of Rust et al. (US Patent 5,263,083).

14. Regarding Claims 2, 18, 35, 50, 64, 78 and 94, as shown above apropos of Claims 1, 17, 33, 49, 63, 77 and 93, respectively, Hamilton anticipates all elements except the bypassing of the echo canceller and use of an echo suppressor when estimated complexity exceeds a threshold. Rust discloses use of half duplex operation (i.e., echo suppression) when resources for full duplex operation (i.e., echo cancellation) are unavailable (column 4, lines 59-68). Hamilton further discloses that this arrangement permits makes it possible to provide service to users even when echo canceller resources are unavailable. As such, it would have been obvious to one

skilled in the art at the time of the invention to apply half-duplex fallback as taught by Rust to the resource manager taught by Hamilton for the purpose of providing service to more users.

Allowable Subject Matter

15. Claims 36, 37, 51, 52, 65, 66, 79, 80 and 96 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

17. Regarding Claims 36, 51, 65 and 79, as shown above apropos of Claims 33, 49, 63, and 77, respectively, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating ERLE. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating ERLE. Therefore Claims 36, 51, 65 and 79 are allowable matter.

18. Claim 37 is allowable matter due to dependence from Claim 36.

19. Regarding Claims 52, 66, 80 and 96, as shown above apropos of Claims 49, 63, 77 and 93, respectively, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). As such, the prior art fails to anticipate or fairly

suggest estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Therefore Claims 52, 66, 80 and 96 are allowable matter.

20. Claims 3, 4, 20 and 19 are allowed.

21. The following is an examiner's statement of reasons for allowance:

22. Regarding Claim 3, as shown above apropos of Claim 1, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating ERLE. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating ERLE. Therefore Claim 3 is allowable.

23. Claim 4 is allowable due to dependence from Claim 3.

24. Regarding Claim 20, as shown above apropos of Claim 17, Hamilton anticipates all elements except the estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Hamilton discloses estimating signal processing complexity based on average number of instructions per time unit required by a resource (column 5, lines 22-26). As such, the prior art fails to anticipate or fairly suggest estimating of signal processing complexity comprising estimating maximum power of a reference signal, long term average power of an error signal and long term average power of a near end signal. Therefore Claim 20 is allowable.

25. Claim 19 is allowable due to dependence from Claim 20.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

26. Applicant's arguments filed 18 March 2005 have been fully considered but they are not persuasive.

27. In the first two complete paragraphs on page 27 and paragraph spanning pages 27 and 28 of the response filed on 18 March 2005, applicant alleges that Hamilton fails to teach an echo canceller or changing the number of coefficients therein as claimed in Claims 1, 17, 33, 49, 63, 77 and 93. Examiner respectfully disagrees. Hamilton discloses, "...if a large number of system resources are presently being used because nearly all of the channels are presently active, then a less sophisticated echo canceler will be used. The performance of such a less sophisticated echo canceler will be acceptable, although not as good as the performance of a more complex echo canceler which might be used if more headroom existed" (column 4, lines 29-35). It is clear that Hamilton is disclosing an echo canceller. Applicant's argument that "the echo cancellation resource types [in Hamilton] are different echo cancellation algorithms that are performed by a processor" does not logically imply that Hamilton does not disclose an echo canceller. Further, Hamilton discloses changing the length of the filter (i.e., the number of coefficients): "the system

manager will assign an echo canceling filter, the length of which is based on the remaining headroom for the entire system" (column 2, lines 46-48).

28. In the first through third complete paragraphs on page 28 and the first paragraph on page 29 of the response, applicant alleges that the combination of Hamilton and Rust fails to make obvious bypassing the echo canceller and suppressing echo instead when the estimated complexity exceeds a threshold as claimed in Claims 2, 18, 35, 50, 64, 78 and 94. Examiner respectfully disagrees. First, Rust discloses that full duplex operation with echo cancellation is the most desirable speakerphone technique (column 1, line 67 through column 2, line 7). Second, Rust discloses that resources for such operation may be limited (column 4, lines 59-65). Third, Rust describes half duplex operation: "a sound-actuated switch is used to control transmission over the speakerphone to a single direction at any time, thus preventing a speaking party's echoes from being re-transmitted to that party" (column 1, lines 45-49). This is echo suppression. Fourth, Rust discloses that during periods of heavy usage (i.e., the level of desired echo cancellation capacity exceeds the threshold of available resources) half duplex operation is substituted for echo cancellation (column 4, lines 65-68). As such, it is clear that Rust teaches bypassing the echo canceller and suppressing echo instead when the estimated complexity exceeds a threshold as claimed.

29. In the second and third paragraphs on page 29 of the response, applicant makes arguments regarding dependent claims that are limited to their dependence on their respective independent claims. These arguments are unpersuasive for the reasons stated above apropos of those claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Swerdlow
Examiner
Art Unit 2644

ds
7 April 2005